

these claims as amended. Also attached as Appendix C is a marked-up version of the claims amended herein pursuant to 37 C.F.R. § 1.121(c)(1)(ii).

REMARKS

The Office Action mailed 4 June 2002 has been received and considered. In the Action, the Examiner has objected to the Abstract of the application, requiring the filing of a substitute Abstract. Claims 1, 2, 5, 8, and 9 stand rejected under 35 U.S.C. 102(a). Claims 3, 4, 6 and 7 stand rejected under 35 U.S.C. 103.

OBJECTION TO THE ABSTRACT:

The Examiner has objected to the present Abstract. In compliance with the indications of the Examiner, applicant submits herewith a substitute Abstract which rectifies the issues raised by the Examiner. In view of this submission, applicant respectfully requests a withdrawal of the Examiner's objection.

REJECTION UNDER 35 U.S.C. 102(A):

Claims 1, 2, 5, 8 and 9 stand rejected under 35 U.S.C. 102(a) over Suzuki et al. (hereinafter "Suzuki"). Applicant respectfully traverses the rejection. Applicant has amended independent claims 1 and 9 to include the additional limitation of a radial slit, defined by each pair of adjacent teeth. As set forth in claims 1 and 9 the slit opens to both axial sides of the diaphragm. Since the slits open to both axial sides of the diaphragm, the teeth are easily vibrated by the piezoelectric element. This facilitates generation of progressive waves and increases the power of the motor. Applicant respectfully submits that Suzuki neither teaches nor suggests a disk-like diaphragm having the claimed slit configuration. Furthermore, Suzuki does not recognize the benefits which are achieved by the configuration of the diaphragm to include the claimed slits.

Suzuki (USP 6,104,124) discloses a disk-like vibrating body (diaphragm) 12 having three projections (teeth) 13 on its upper surface, as shown in Figs. 1 to 2B. However, Suzuki merely

discloses a recess defined by each pair of adjacent projections 13, but does not disclose a radial slit that opens to both axial sides of the diaphragm. The vibrating body 12 of Suzuki is a disk with an odd number of projections 13, which does not have slits as recited in the present invention.

In view of the added claim limitation requiring a slit to be defined by each pair of adjacently positioned teeth and each slit to be open on both axial sides of the diaphragm, applicant respectfully maintains that the instant claims 1 and 9 distinguish over the Suzuki reference. Applicant therefore submits that the rejection of claims 1 and 9 under 35 USC 102(a) should be withdrawn.

Applicant further submits that the claims dependent on claim 1, namely claims 2, 5, and 8 should also be allowable under 35 USC 102(a) over Suzuki for the same reasons set forth above with regard to the allowability of claims 1 and 9.

With specific reference to claim 2, the Suzuki structure does not include slits in its configuration. It follows that the Suzuki structure would not confront the likelihood that the vibrating body 12 could be easily bent or distorted if two slits were positioned diametrically opposite one another. Claim 2 specifically addresses this concern by specifying that the slits and teeth are arranged such that no two slits are positioned on a common diameter, i.e. no two slits are positioned diametrically opposite one another.

In the instant claimed construction, if two slits were diametrically opposed, the radial dimension of the diaphragm between the two slits and along the diameter line could be small. If that radial dimension is too small the diaphragm could be easily bent along the diametric line. Therefore, in the present invention, the number of the slits is constrained to be odd and the slits are spaced apart at equal angular intervals, as recited in claim 1. Thus, one of the slits and one of the teeth are angularly separated by one hundred and eighty degrees and are aligned along a common diameter, i.e. diametric line. In other words, no two slits are positioned co-axially along a common diameter. This claimed orientation of the slits and teeth provides a structure improves

the strength of the diaphragm. As a result, the reliability of the motor is improved (see the paragraphs [0051] and [0052] of the specification).

REJECTION UNDER 35 USC 103:

Claims 3 and 4 stand rejected under 35 USC 103 over Suzuki in view of Tsukada. Claims 6 and 7 stand rejected under 35 USC 103 over Suzuki.

Claims 3, 4, 6 and 7 all depend from Claim 1. It follows that each of these claims contains the limitation of the slit configuration set forth above. Suzuki neither teaches nor suggests the claimed slit configuration. Tsukada likewise neither teaches nor suggests the claimed slit configuration. It follows that any combination of Suzuki and Tsukada could neither teach nor suggest the claimed slit configuration. In view of this fact, applicant respectfully submits that claims 3, 4, 6 and 7 distinguish over Suzuki and Tsukada and therefore the aforesaid claims should be allowable under 35 USC 103 over the two cited references.